

### **Abstract**

Prior art architectures of power amplifiers employ a substantial die area, and utilize multiple integrated circuit technologies with a net higher manufacturing cost and large associated packaging area. A new scheme is presented wherein several sense and control signals are used to provide fine and gross control over the key figures of merit associated with integrated semiconductor power amplifiers. How and where these sense and control signals are used is crucial to achieving the most manufacturable and most economic integrated amplifier. In accordance with a first embodiment of the invention, a Dual Feedback-Low power regulation circuit for a three-stage power amplifier integrated circuit is provided. In accordance with a second embodiment of the invention, a current source feedback circuit having low RF output signal power regulation for a three-stage power amplifier integrated circuit is provided. In accordance with a third embodiment of the invention, a detector circuit in the form of an integrated logarithmic current detector circuit in conjunction with a three stage power amplifier integrated circuit. The three embodiments of the invention advantageously overcome the limitations of the prior art.